



Workshop #4

Reach 25 – Lower LA River

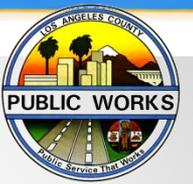
June 24, 2015



Vegetation Maintenance

Vegetation clearing is required on Soft Bottom Channels and Levees

1. To provide flood protection for County residents
2. To comply with USACE Operations & Maintenance Manual
3. To comply with USACE Levee Safety Program
4. To comply with FEMA Levee Certification Program



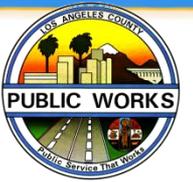
USACE Operations & Maintenance Manual

- LACFCD has an approved O & M Manual for channels and levees transferred from USACE. Some provisions of this manual include:
 - The principal purpose of the system is the conveyance of storm water-runoff
 - Generally free of vegetation and debris
 - No improvement, excavation, or construction that may impact the structural integrity and channel capacity (such as causing a change to the water surface profile) is permitted

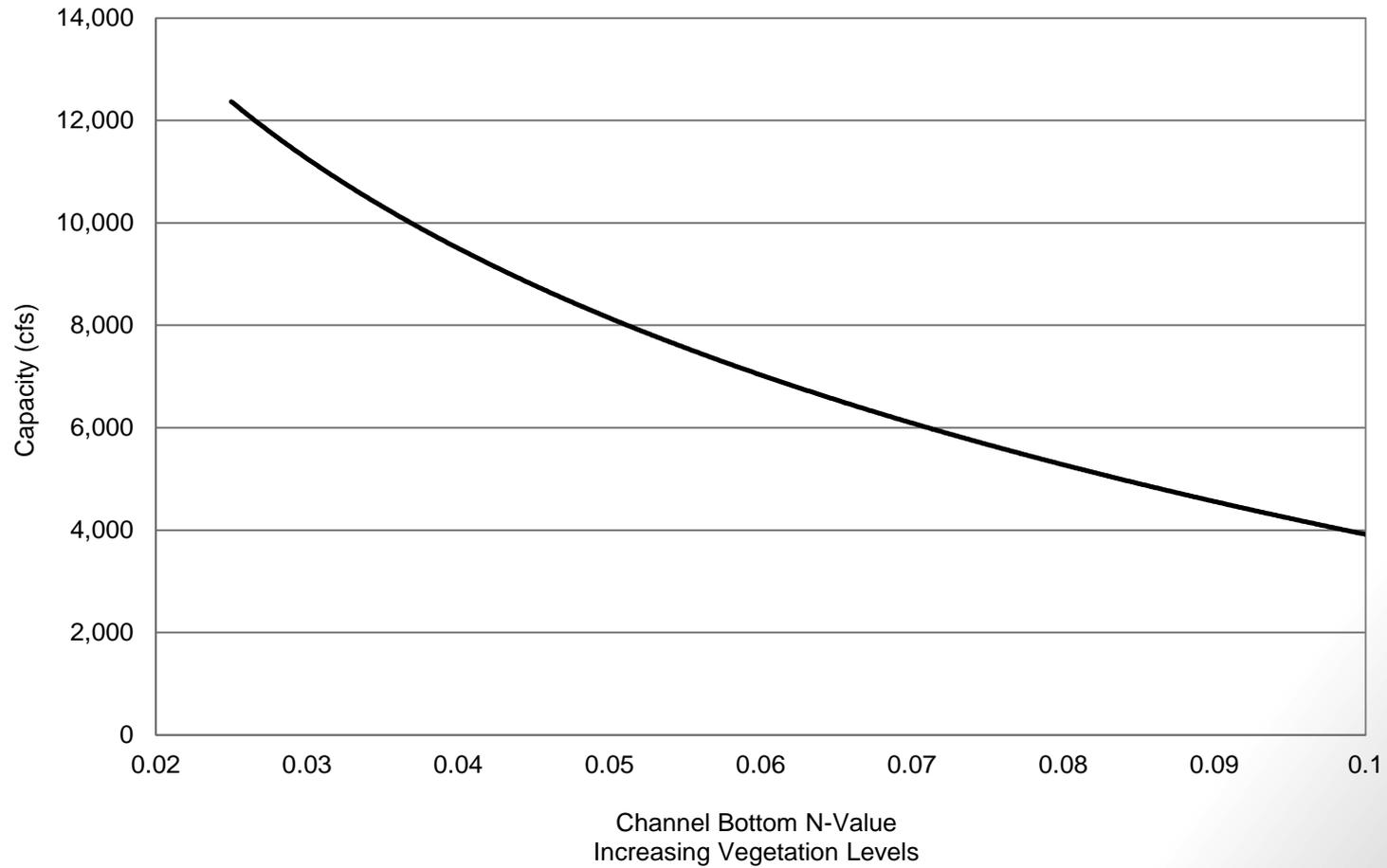


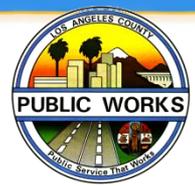
Hydraulic Software

- U.S. Army Corps of Engineers HEC-RAS software
- Developed by the Hydrologic Engineering Center
- Peer-reviewed
- Widely used and accepted
- Available free of charge



Effects of Roughness Coefficient on Channel Capacity





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- Willow Street to Pacific Coast Highway
- Constructed by U.S. Army Corps of Engineers in 1955
- Improved by Corps in 1998 as part of the LACDA Project
- Designed for 133-year flood protection (182,000 cfs)
- HEC-RAS model developed by Corps in 2004





LOS ANGELES COUNTY DRAINAGE AREA
RIO HONDO CHANNEL AND LOS ANGELES RIVER
WHITTIER NARROWS DAM TO PACIFIC OCEAN

STORMWATER MANAGEMENT PLAN

PHASE I

HEC-RAS HYDRAULIC MODELS

RIO HONDO CHANNEL REACH 4
AND
LOWER LOS ANGELES RIVER REACHES 3B, 3A, and 2

1. INTRODUCTION

Purpose

1.1 The purpose of this report is to present the hydraulic analyses for Phase I of the Stormwater Management Plan. In addition, the report establishes the regulatory water surface elevations that will be used as the basis against which all hydraulic impacts to the Phase I channels are evaluated.

Scope

1.2 Phase I of the plan encompasses the development of hydraulic models for the Rio Hondo Channel and lower Los Angeles River. Additional phases for modeling the remaining portion of the Los Angeles River and other major tributaries may follow at a later date.

Project Authorization

1.3 The Project Cooperation Agreement (Appendix A) between the Department of the Army and the Los Angeles County Flood Control District for Construction of the Los Angeles County Drainage Area, California Flood Control Project, states under Article II.Q that:

“The Non-Federal Sponsor shall prescribe and enforce regulations, or undertake other actions, managing stormwater runoff (hereinafter the “stormwater management plan”) from within Los Angeles County to ensure that the quantity or concentration of stormwater inflow does not reduce the authorized level of flood protection.”

1.4 In December 2002, the U.S. Army Corps of Engineers (USACE) and Los Angeles County Department of Public Works (LACDPW) agreed to develop a detailed HEC-RAS hydraulic model of the Los Angeles County Drainage Area (LACDA) system to assess the

Cattails, small shrubs

$n_b = 0.025$ (firm soil)
 n_4 (vegetation) = 0.010 (med)
 $n = 0.035$

Open Water

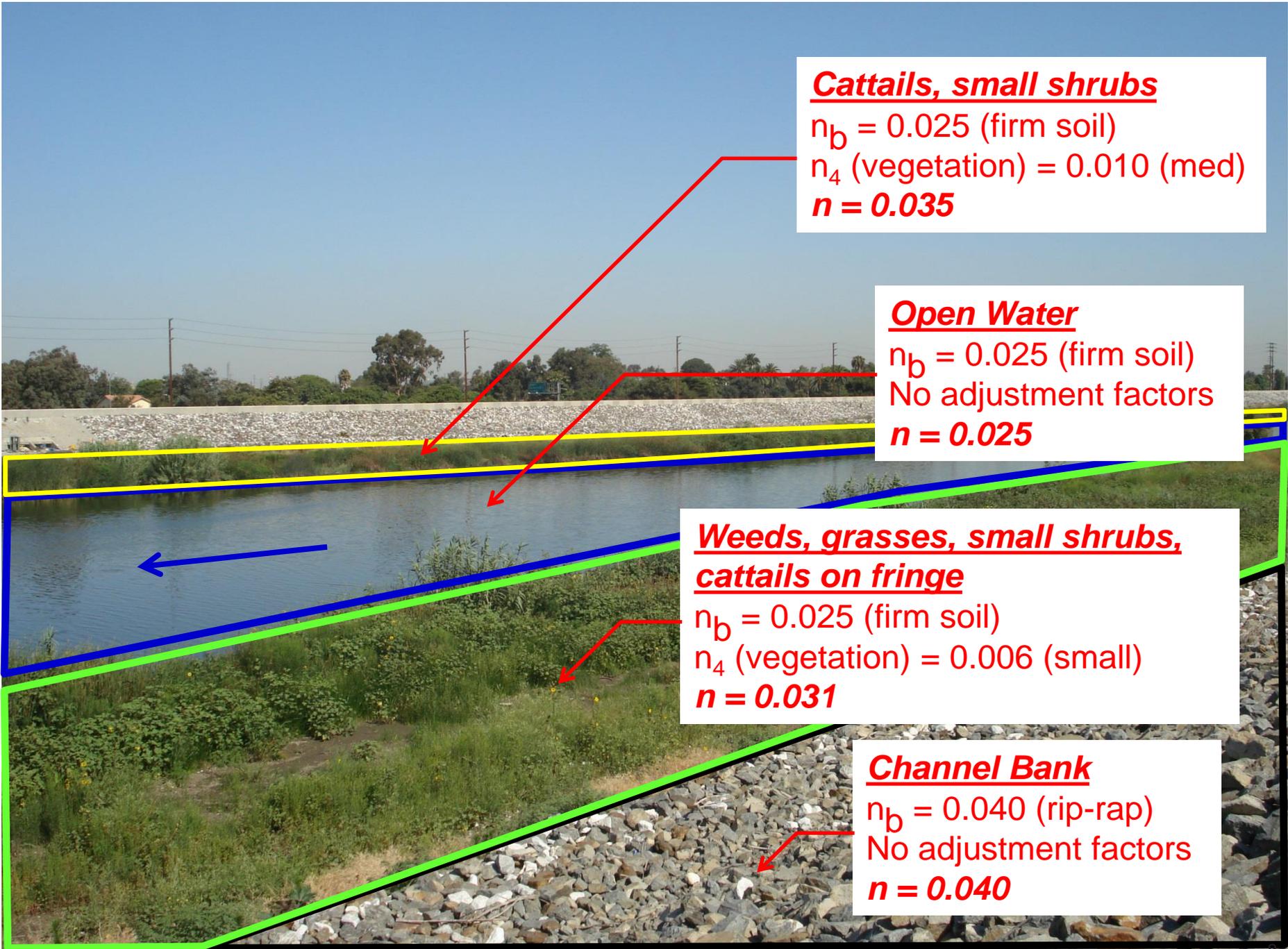
$n_b = 0.025$ (firm soil)
No adjustment factors
 $n = 0.025$

**Weeds, grasses, small shrubs,
cattails on fringe**

$n_b = 0.025$ (firm soil)
 n_4 (vegetation) = 0.006 (small)
 $n = 0.031$

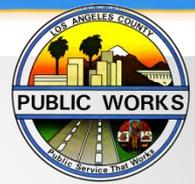
Channel Bank

$n_b = 0.040$ (rip-rap)
No adjustment factors
 $n = 0.040$

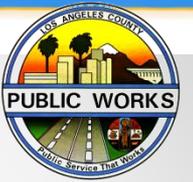




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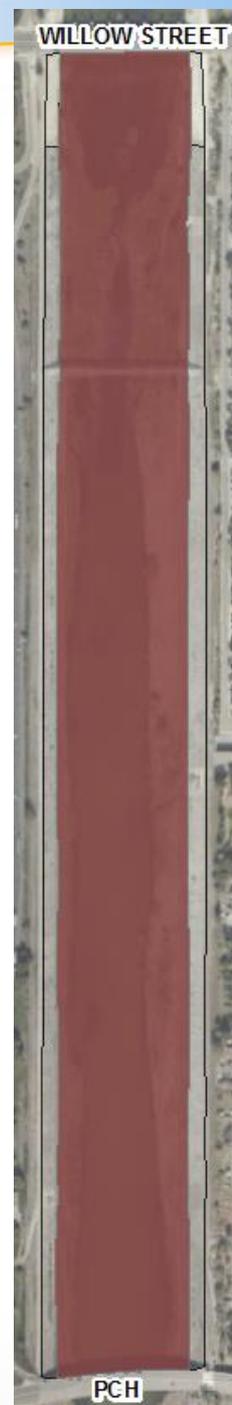
- **Baseline Condition**
 - Established by 2004 Corps Hydraulic Study
 - Clear of all vegetation
- **No-maintenance Condition**
 - Allow natural growth of willow trees, cattails, grasses, and other vegetation
- **Pre-clearing Condition**
 - Removal of highly invasive non-native vegetation (i.e. arundo, castor bean, tamarisk) by hand tools only. Existing willows will remain.
 - Maintain natural vegetation 2 to 3-feet high by trimming.

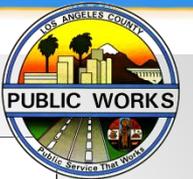


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Baseline Condition

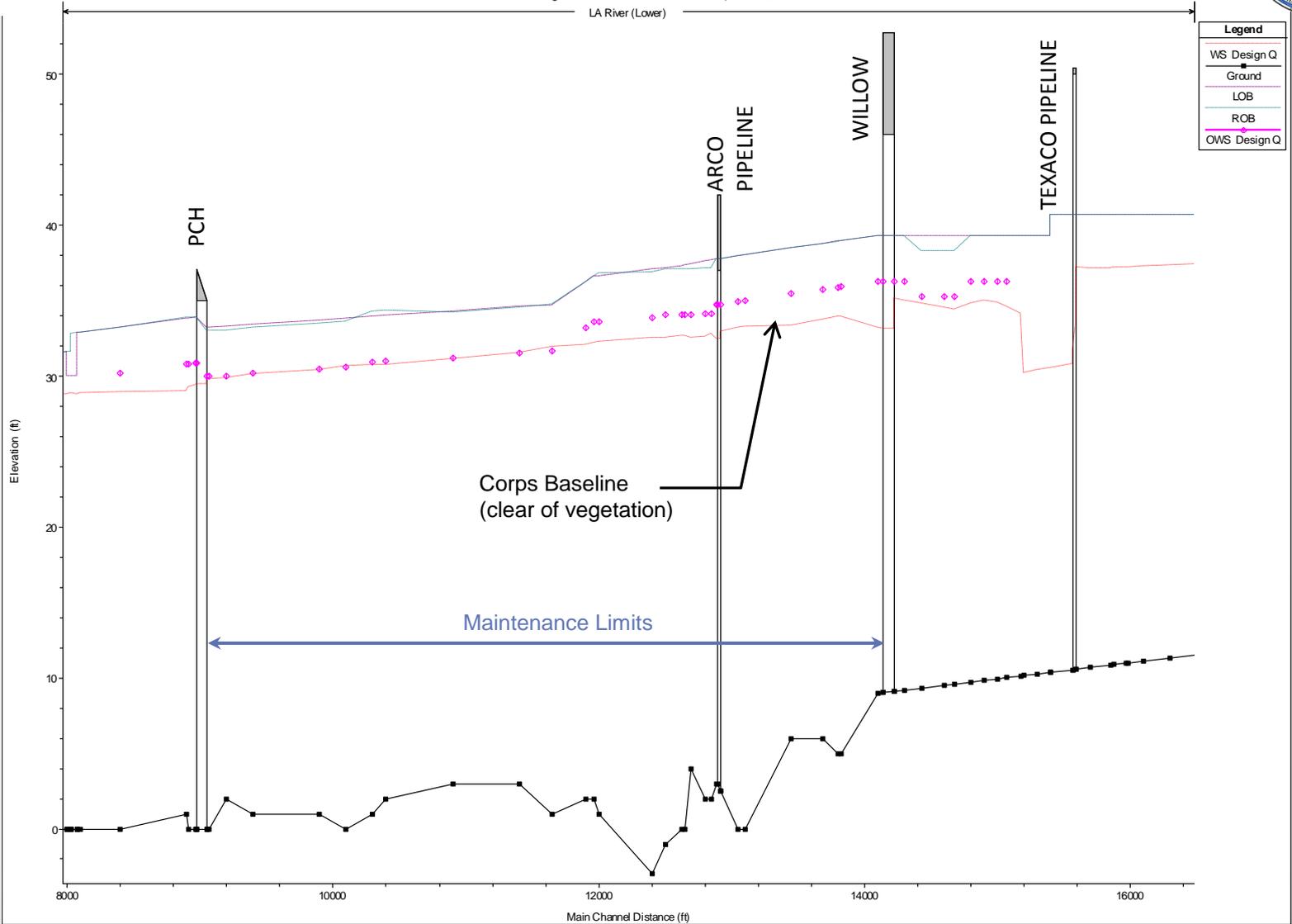
- Clear of vegetation

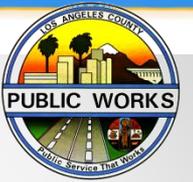




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LACDA - Stormwater Management Plan Plan: 1) V1.0_JUL2004 4/15/2015

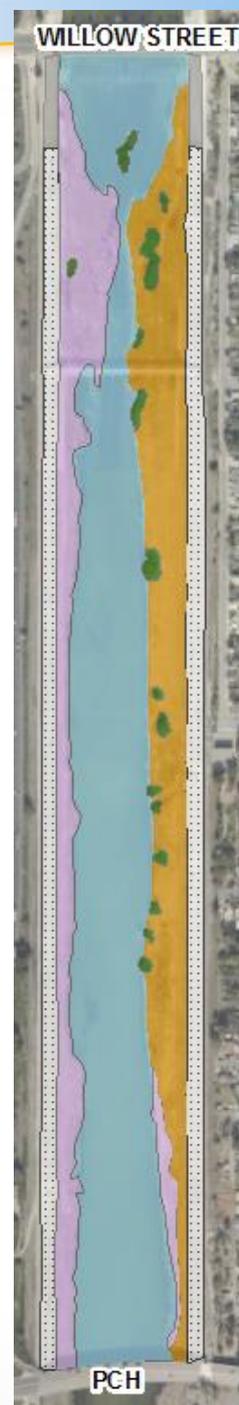




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No-maintenance Condition

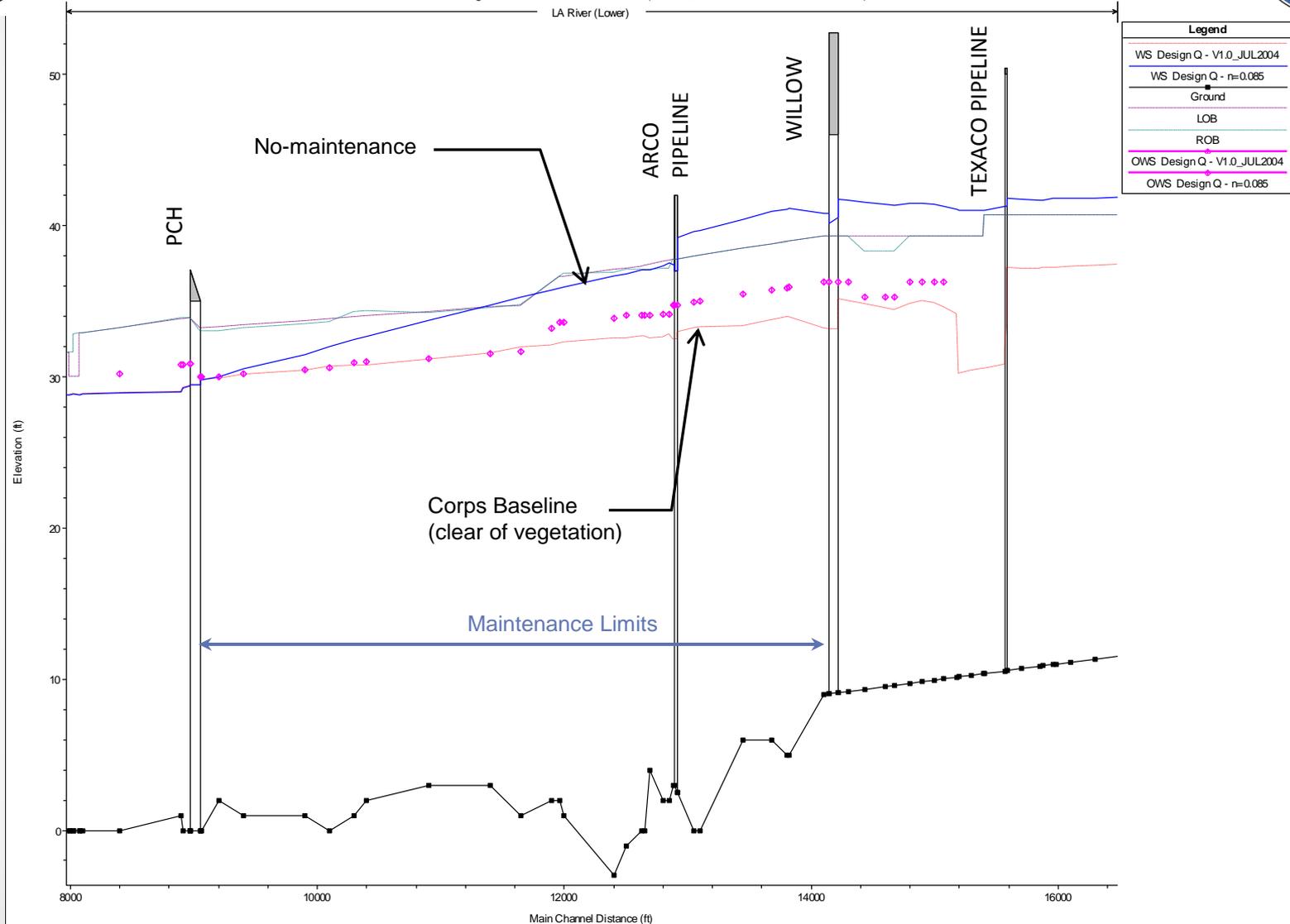
- Allow natural growth of all vegetation

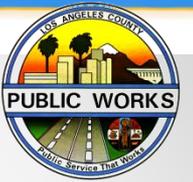




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LACDA - Stormwater Management Plan Plan: 1) V1.0_JUL2004 4/15/2015 2) n=0.085 6/1/2015





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Pre-clearing Condition

- Scattered willow trees
- Cattails, small brush (right terrace)
- Grasses, small brush





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Reach 25 – Lower LA River





Reach 25 – Lower LA River

LACDA - Stormwater Management Plan Plan: 1) V1.0_JUL2004 4/15/2015 2) Option 2a 6/17/2015

